

REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 1-40 are pending.

5 **35 U.S.C. §103 Claim Rejections**

A. Claims 1-2, 4-9, and 11-40 are rejected under 35 U.S.C. §103(a) for obviousness over U.S. Patent Publication 2003/0133138 to Namikata in view of U.S. Patent No. 6,697,582 to Scheucr et al. (hereinafter, "Scheuer") (*Office Action* p.2).

10 **B.** Claims 3 and 10 are rejected under 35 U.S.C. §103(a) for obviousness over Namikata in view of Scheuer, and further in view of U.S. Patent No. 6,628,426 to Denton et al. (hereinafter, "Denton") (*Office Action* p.4). Applicant respectfully traverses the rejections.

15 **Claim 1** recites a printing system, comprising:

 a print unit configured to apply a colorant to a test element and to a print media; and

20 a calibration system configured to:

 measure one or more colorant levels of the colorant applied to the test element before the colorant is in a finished state;

25 measure one or more color values of the colorant applied to the print media after the colorant is in the finished state; and

30 establish a correlation between the one or more measured colorant levels and the one or more measured color values such that the correlation can be utilized to calibrate the print unit.

Namikata and/or Scheuer do not teach or suggest the combination of elements recited in claim 1, such as a calibration system to “establish a correlation between the one or more measured colorant levels and the one or more measured color values such that the correlation can be utilized to calibrate the print unit.”

The Office cites Namikata for both the measure of colorant levels of colorant applied to a test element before the colorant is in a finished state (*Namikata* Fig. 17A), and the measure of color values of the colorant applied to print media after the colorant is in a finished state (*Namikata* ¶[0150]) (*Office Action* p.2).

Applicant disagrees because Namikata does not describe, nor has the Office cited to Namikata, for the feature of colorant applied to a test element and to a print media, as recited in the first element of claim 1. Accordingly, Applicant disagrees that Namikata measures the colorant levels of colorant applied to a test element, as recited in claim 1. Further there is no indication with reference to Namikata Fig. 17A that a color patch is applied to a test element, or that a colorant level of the colorant is measured before the colorant is in a finished state. The Office has not addressed these many features of claim 1.

Applicant also disagrees that Namikata ¶[0150] describes the measure of color values of the colorant applied to the print media. Namikata only describes that “lab values” can be calculated from the obtained color patch measurements, and lab values are described as converted device-independent color space (*Namikata* ¶[0065]). The lab values are not measured in Namikata, but rather converted by look-up table conversion (*Namikata* ¶[0150]).

The Office also cites to Namikata ¶[0240] to establish the correlation between the measured colorant levels and the measured color values, as recited

in claim 1 (*Office Action* p.2). Applicant also disagrees because Namikata only describes a lab value to density look-up table generation method that involves an interpolation operation – rather than a correlation between actual measured colorant levels and/or measured color values, as recited in claim 1. The basis
5 for the rejection of claim 1 is unclear from the simple paragraph cites to Namikata by the Office.

Further, the Office has not cited to Scheuer, or to the Namikata-Scheuer combination to establish a correlation between measured colorant levels and
10 measured color values, as recited in the last element of claim 1. Scheuer describes comparing a target tone reproduction curve to a measurement of an actual tone reproduction curve to determine a sign of a desirable change in a target control patch density (*Scheuer* col.5, line 66 to col.6, line 3). Changing the target control patch density is based on the determined sign and a
15 determined magnitude (*Scheuer* col.6, lines 8-10). A target tone reproduction curve is described to relate input contone values to colorant density applied to a print medium (a contone value indicates how much colorant should be applied to render a portion of an image) (*Scheuer* col.2, lines 1-3; col.1, lines 55-62).

Scheuer also describes that the target tone reproduction curve can be
20 changed according to measurements made of an image rendered on a print medium and the associated target measurements (*Scheuer* col.17, lines 41-44). However, there is no mention in Scheuer of a calibration system to actually measure colorant levels of the colorant applied to a test element before the colorant is in a finished state, as recited in claim 1. Further, there is no mention
25 in Scheuer, and the Office does not cite to Scheuer for a correlation being established between measured colorant levels and measured color values, as recited in claim 1.

Accordingly, claim 1 is allowable over Namikata and/or Scheuer for at least any one of these reasons, and the §103 rejection should be withdrawn.

Additionally, there is no motivation to combine Scheuer with Namikata to establish the correlation between measured colorant levels and measured color values, as recited in claim 1, because neither reference suggests a correlation between measured colorant levels and measured color values. As described above, Namikata does not apply a colorant to both a test element and to a print media, and does not measure the colorant levels of colorant applied to the test element. There is no indication that any such colorant levels in Namikata might be utilized to establish a correlation with measured color values. Also as described above, Scheuer can change a target tone reproduction curve according to measurements made of an image rendered on a print medium. There is no indication that the measurements of an image rendered on a print medium might be utilized to establish a correlation with measured colorant values.

Accordingly, claim 1 along with dependent claims 2 and 4-8 are allowable over Namikata and/or Scheuer, and the §103 rejection should be withdrawn. Additionally, claim 3 is allowable over the combination of Namikata, Scheuer, and Denton by virtue of its dependency upon claim 1, and because Denton does not address the deficiencies of Namikata or Scheuer as described above.

Claim 9 recites a printing system, comprising:

a print unit configured to apply a colorant to a test element; and
a calibration system configured to:

measure one or more colorant levels of the colorant applied to the test element before the colorant is in a finished state;

5 convert the one or more measured colorant levels to corresponding one or more predicted color values;

 compare the one or more predicted color values to target color values; and

10 calibrate the print unit if a difference between the one or more predicted color values and the target color values exceeds a threshold value.

The Office recognizes that Namikata fails to teach the comparison of
15 predicted color values to target color values, and to calibrate the print unit if a difference between the predicted color values and the target color values exceeds a threshold, as recited in claim 9 (*Office Action* p.3). The Office then cites to Scheuer for this feature. However, as described above in the response to the rejection of claim 1, there is no mention in Scheuer of a calibration
20 system to measure colorant levels of the colorant applied to a test element before the colorant is in a finished state, and there is no motivation found in either Namikata or Scheuer to combine Scheuer with Namikata. As such, Scheuer does not convert measured colorant levels because Scheuer does not measure the colorant levels applied to a test element, as recited in claim 9.

25 Accordingly, claim 9 along with dependent claims 10-15 are allowable over the Namikata combination for at least the reasons described above, and Applicant respectfully requests that the §103 rejection be withdrawn. Additionally, claim 10 is allowable over the combination of Namikata, Scheuer, and Denton by virtue of its dependency upon claim 9, and because
30 Denton does not address the deficiencies of Namikata or Schcuer as described above.

Claim 16 recites “a second calibration mode configured to... establish a correlation between the measured colorant levels and the measured color values.”

5 Claim 22 recites a printing device to “establish a correlation between the measured colorant levels and the measured color values such that the correlation can be utilized to calibrate a print unit.”

Claim 26 recites “establishing a correlation between the measured colorant levels and the measured color values such that the correlation can be utilized to calibrate a print unit.”

10 Claims 36 and 37 recite “establishing a correlation between the measured colorant levels and the measured color values”.

Claim 39 recites a printing device to “establish a correlation between the measured colorant levels and the measured color values”.

15 Claim 40 recites a “means for establishing a correlation between the measured colorant levels and the measured color values”.

20 As described above in the response to the rejection of claim 1, Namikata and/or Scheuer do not establish a correlation between measured colorant levels and measured color values, as recited in independent claims 16, 22, 26, 36-37, and 39-40.

Accordingly, claims 16-21, 22-25, 26-30, 36-38, and 39-40 are allowable over the Namikata-Scheuer combination, and the §103 rejection should be withdrawn.

25 Claim 31 recites “measuring colorant levels of a colorant applied to a test element before the colorant is in a finished state”, and “converting the measured colorant levels to corresponding predicted color values”. As

described above in the response to the rejection of claims 1 and 9, the Office recognizes that Namikata fails to teach comparing predicted color values to target color values, as recited in claim 31 (*Office Action* p.7). Additionally, there is no mention in Scheuer of measuring colorant levels of a colorant applied to a test element before the colorant is in a finished state, and there is no motivation found in either Namikata or Scheuer to combine Scheuer with Namikata. As such, Scheuer does not convert measured colorant levels because Scheuer does not measure the colorant levels applied to a test element, as recited in claim 31.

Accordingly, claim 31 along with dependent claims 32-35 are allowable over the Namikata-Scheuer combination, and the §103 rejection should be withdrawn.

Conclusion

Pending claims 1-40 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. If any issues remain that preclude issuance of this application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

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